

High Radiation Resistance Inverted Metamorphic Solar Cell, Phase I

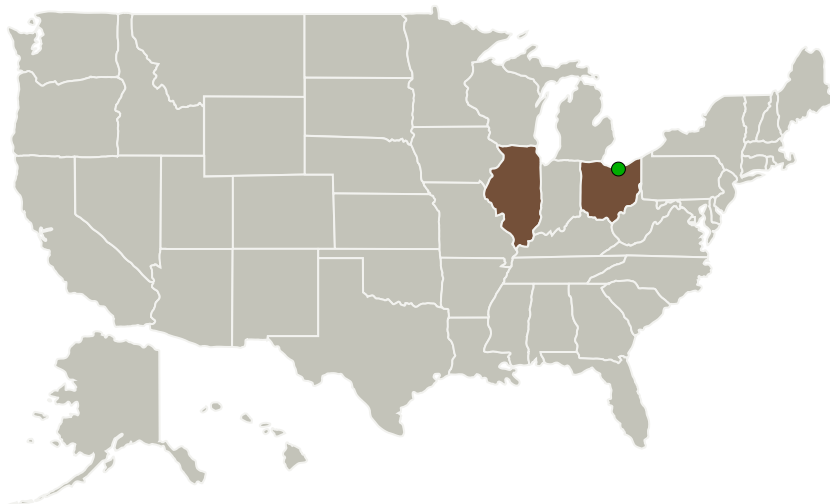
Completed Technology Project (2010 - 2010)



Project Introduction

The innovation in the proposed SBIR Phase I project is the development of a unique triple junction inverted metamorphic technology (IMM), which will enable the manufacture of very lightweight, low-cost InP-based multijunction solar cells. The proposed IMM technology will consist of an all indium and phosphorous-based structure, which is designed to improve the radiation resistance properties of the triple junction solar cell. Because of the intrinsic radiation hardness of InP materials, this material system is of great interest for building solar cells suitable for deployment in very demanding radiation environments such as medium earth orbit and missions to the outer planets. It is expected that an efficiency greater than 30% could be realized with this new IMM structure.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
MicroLink Devices, Inc.	Lead Organization	Industry Minority-Owned Business	Niles, Illinois
● Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio



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Primary U.S. Work Locations

Illinois

Ohio

Project Transitions



January 2010: Project Start



July 2010: Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/140025>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

MicroLink Devices, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Noren Pan

Co-Investigator:

Noren Pan

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Technology Maturity (TRL)

Start: **3**
Current: **4**
Estimated End: **4**



Technology Areas

Primary:

- TX03 Aerospace Power and Energy Storage
 - └ TX03.1 Power Generation and Energy Conversion
 - └ TX03.1.1 Photovoltaic

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System